phase shifting means comprising a D-flip-flop being clock controlled by said clock control signal and providing said fixed phase shift of $\Delta\varphi$.

These and further aspects and advantages of the invention will be discussed more in detail hereinafter with reference to the disclosure of preferred embodiments, and in particular with reference to the appended Figures that show:

Figure 1, a multiplier device according to the invention;

Figure 2A, a graph for deriving the mutual phase difference between two phase consecutive mixing signals and weighting factors WF1 to WF3 in a multiplier device according to the invention for n=3;

Figures 2B to 2D, waveforms of identical, substantially square wave mixing signals MS_1 to MS_3 with 50% duty cycle for n=3;

Figure 3A, a graph for deriving the mutual phase difference between two phase consecutive mixing signals and weighting factors WF1 to WF4 in a multiplier device according to the invention for n=4;

Figures 3B to 3E, waveforms of identical, substantially square wave mixing signals MS_1 to MS_n with 50% duty cycle for n=4;

Figure 4A, a mixing signal generator for generating first to n^{th} mutually phase shifted and identical, substantially square wave mixing signals MS_1 to MS_n with 50% duty cycle according to the invention;

Figure 4B, deviations of mixing signals, which do not affect proper operation of the multiplier device according to the invention.

Figure 1 shows an embodiment of a multiplier device (M1-Mn, W1-Wn, ADD) according to the invention used in a receiver front end. The receiver front end comprises an RF antenna ANT being coupled to an RF input unit RFI supplying an RF antenna input signal with an RF carrier frequency f_{RF} in common to first to n^{th} multipliers M_1 to M_n, n being 3 or more. The RF antenna input signal is being demodulated therein into an intermediate frequency (IF) signal with an IF carrier frequency f_{IF}. Said first to n^{th} multipliers M_1 to M_n receive from a mixing signal generator MSG respectively first to n^{th} mutually phase shifted and identical, substantially square wave mixing signals MS_1 to MS_n with 50% duty cycle. Outputs of said first to n^{th} multipliers M_1 to M_n are respectively coupled through weighting